1320.01 General

Roadside vegetation provides operational, environmental, and visual benefits to WSDOT roadway users. Vegetation preservation and restoration is an integral part of roadside planning and design. When a project disturbs a roadside segment, that project is responsible for meeting the requirements of the roadside classification for that road segment. This may include working outside the actual disturbed area for buffering and blending into the surrounding landscape.

Consult early in the project process with the region Landscape Architect, or the Headquarters (HQ) Roadside & Site Development Unit for regions without a Landscape Architect, for all projects involving revegetation.

1320.02 References

Roadside Classification Plan, M 25-31, WSDOT

Roadside Manual, M 25-30, WSDOT

Integrated Vegetation Management for Roadsides, WSDOT

Standard Specifications for Road, Bridge, and Municipal Construction (Standard Specifications), M 41-10, WSDOT

State Highway System Plan (HSP)

1320.03 Discussion

Operational, Environmental and Visual Functions of Roadside Vegetation

Roadside vegetation serves various functions. Vegetation is used to:

- Prevent soil erosion.
- Enhance water quality.
- Provide for water storage and slow runoff.
- Aid in de-watering soils.
- Stabilize slopes.
- Protect or restore wetlands and sensitive areas.
- Preserve and provide habitat.
- Prevent noxious weed infestation.
- Provide positive driver cues for guidance and navigation.
- Provide for corridor continuity.
- Screen glare and distractions, and buffer view of neighboring properties from the roadway.
- Buffer view of roadway by neighboring property owners.
- Preserve scenic views.
- Reduce driver monotony.
- Provide a transition between the transportation facility and adjacent land uses.
- Provide for a pleasing roadside experience.

1320.04 Design Guidelines

(1) General

The type and extent of vegetation will vary depending on the roadside character classification of the road segment, the approved treatment level of the project, the affected roadside management zone, and the planting environment. Select and maintain vegetation so that it does not present a hazard or restrict sight distances of drivers to other vehicles and to signs.

Apply the following guidelines when designing roadside revegetation projects:

- Meet the requirements of the *Roadside Classification Plan*.
- Review Corridor Master Plans and the *State Highway System Plan* for future projects and corridor goals.

- Design revegetation plans, including wetland mitigation sites and detention/retention ponds, to be sustainable over time and to require a low level of maintenance.
- Design roadside revegetation and restoration plans to reduce pesticide use.
- Select and maintain plants to achieve required clear zone, sight distance, clear sight to signing, and headlight screening.
- Evaluate the mature characteristics of plant species to meet safety requirements. Consider size and extent of vegetation at maturity for sight distance, clear zone, and shading problems.
- Preserve existing desirable vegetation and topsoil to the maximum extent reasonable.
- Select plants adaptable to the site conditions. Select native plants as the first choice, unless conditions warrant non-native species to be sustainable. (See the *Roadside Manual* for more information.)
- Consider stripping, stockpiling, and reapplying topsoil if construction will disturb topsoil. When this is not feasible, amend remaining soil to meet horticultural requirements, to reduce compaction, and to increase moisture retention.
- Consider design speeds in the selection and location of plants. For example, as traffic speed increases, include larger groupings of fewer species in the landscape since the motorist's perception of detail along the roadside diminishes.
- Accommodate existing and proposed utilities.
- When selecting vegetation, consider screening undesirable views, or consider allowing openings to reveal or maintain desirable views.
- Design roadsides, particularly areas under bridges, to reduce potential for homeless encampments. Keep clear lines of sight where this potential exists.

Roadway geometrics will also affect the type and extent of vegetation in specific locations. The maximum allowable diameter of trees within the Design Clear Zone is 4 in. measured at 6 in. above the ground when the tree has matured. Consider limiting vegetation diameters on the outside of curves beyond the Design Clear Zone to improve safety. See the *Roadside Manual* for more information.

(2) Existing Vegetation.

Avoid destruction of desirable existing vegetation, reduce impacts on desirable existing vegetation, and restore desirable damaged vegetation.

- Protect desirable existing vegetation wherever possible.
- Delineate trees that are to remain within the construction zone and provide adequate protection of the root zone (extending from the tree trunk to a minimum of 3 ft beyond the drip line).
- Encourage desirable vegetation by using revegetation techniques to prevent or preclude the establishment of undesirable vegetation. See *Integrated Vegetation Management for Roadsides.*
- Limit clearing and grubbing (especially grubbing) to the least area possible.

Selectively remove vegetation to:

- Remove dead and diseased trees when they are a hazard (including those outside the clear zone).
- Maintain clear zone and sight distance.
- Increase solar exposure and reduce accident rates, if analysis shows that removing vegetation will improve safety.
- Open up desirable views.
- Encourage understory development.
- Encourage individual tree growth.
- Prevent plant encroachment on adjacent properties.
- Ensure long-term plant viability.

Refer to Division 8 of the *Roadside Manual* for more information.

(3) Plant Material Selection.

Select noninvasive vegetation (not having the potential to spread onto roadways, ditches and adjacent lands).

Base plant material selection on:

- Functional needs of the roadside.
- Maintenance requirements.
- Site analysis and conditions expected after the facility is constructed.
- Horticultural requirements.
- Plant availability.
- Plant success rates in the field.
- Plant cost.
- Traffic speed.

The *Roadside Manual* provides more detailed guidelines on plant selection, sizing, and location.

(4) Establishment of Vegetation

Most WSDOT projects have 1 to 3-year plant establishment periods. Wetland mitigation projects often include additional years of monitoring and plant establishment to ensure that mitigation standards of success, defined in the permit conditions, are met. The goal of plant establishment is to promote a healthy, stable plant community and a project that has achieved a reasonable aerial coverage prior to WSDOT Maintenance taking over the responsibility and associated costs.

Soil treatments, for example incorporation of soil amendments such as compost into the soil layer, surface mulching, and the use of slow release fertilizer will improve the success rate of revegetation after highway construction activities have removed or disturbed the original topsoil. Woody native plants will grow faster and require less weed control through the combined use of compost and bark mulch. (Check with the local maintenance office or the local jurisdiction's comprehensive plan for any restrictions on fertilizer use, such as those in well-head protection areas or restricted watershed areas.)

- Use soil amendments based on the soil analysis done for the project. Soil testing is coordinated through the HQ Horticulturist or the Landscape Architect. Soil amendments will enhance the soil's moisture holding capacity.
- Use surface mulches to conserve soil moisture and moderate soil temperatures. Mulches also help keep weeds from competing with desirable plants for water and nutrients, and provide organic matter and nutrients to the soil.
- Permanent irrigation systems are only to be used in urban or semiurban areas where vegetation is surrounded by paved surfaces or it does not have available groundwater. Use temporary systems to establish vegetation when needed. If irrigation is required, see Chapter 1330 for design guidelines and the *Roadside Manual* for more detail.
- Weed control is necessary for plant establishment success. Include funding for weed control in the project budget to cover the full plant establishment period. The duration of this period is dependent upon plant and permit requirements.

1320.05 Documentation

A list of documents that are to be preserved in the Design Documentation Package (DDP) or the Project File (PF) is on the following website: http://www.wsdot.wa.gov/eesc/design/projectdev/